SPRING CREEK NATIONAL FISH HATCHERY

ANNUAL REPORT 2006

ANNUAL REPORT
FISCAL YEAR 2006

Spring Creek National Fish Hatchery
Station

Underwood, Washington
City and State

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Project Leader

1/8/07
Date

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2006 Annual Report Narrative

Introduction

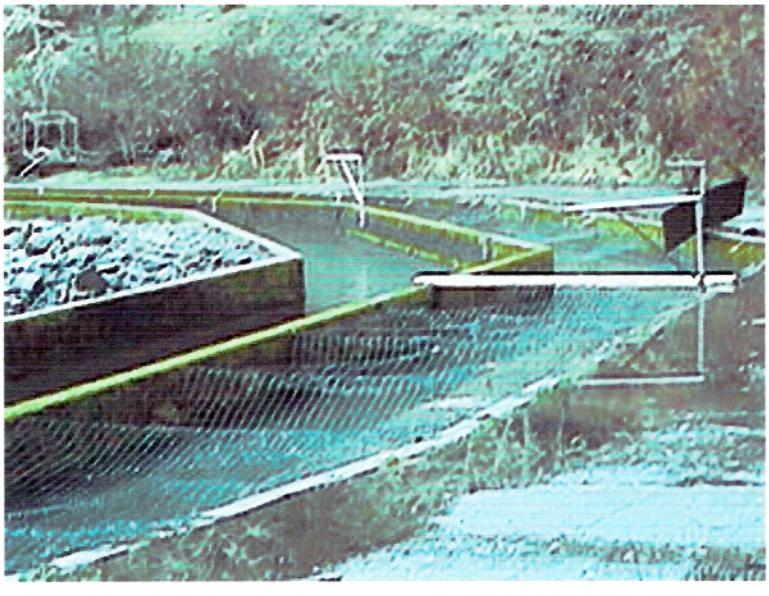
The U.S. Fish and Wildlife Service's Spring Creek National Fish Hatchery produces tule fall Chinook salmon (*Oncorhynchus tshawytscha*) for the Columbia River Basin as mitigation under the Mitchell Act of 1938 and the Flood Control Act of 1950.

The hatchery was authorized by Special Act 24 Stat.523, March 3, 1887 and Special Act 30. Stat.612, July 01, 1891 and placed into operation in 1901 primarily to support the commercial fishing industry. The hatchery was reauthorized by the Mitchell Act (16 USC 755-757:52 Stat.345) May 11, 1938 and amended on August 8, 1946, (60 Stat.932) for conservation of fishery resources in the Columbia River. The hatchery was remodeled in 1948 to mitigate for Bonneville Dam (Mitchell Act) and was expanded to its present size in 1972 by the U.S. Army Corps of Engineers (COE) for mitigation under the John Day Dam Flood Control Act of 1950.

Spring Creek is located on the Columbia River one mile west of Underwood, Washington, and approximately sixty miles east of Portland, Oregon. The hatchery sits on 60.21 acres in Skamania County, Washington. Hatchery facilities include: a combined visitor center and spawning building, administration building, feed storage building with crew room, forty-four Burrows ponds, eighteen filterbeds, two settling lagoons, a fish ladder, several service buildings and four sets of quarters. The primary water supply for the hatchery comes from a series of five unnamed springs located at the base of basalt cliffs north of the hatchery. A production well is utilized during incubation and early ponding periods. Water rights are also held for Columbia River water.

The hatchery produces more than 15 million tule fall Chinook salmon annually. These fish are native to this part of the Columbia River and originally spawned in the White Salmon River which is one mile east of the hatchery. From 1901 to 1938 tule fall Chinook were trapped by seining the mouth of the White Salmon River. Collected eggs were transported to Spring Creek NFH for incubation and fingerlings were released at both the hatchery site and in the White Salmon River. After construction of Bonneville Dam in 1938 adult collections in the White Salmon River became very difficult and by 1964 sufficient number of adults were returning to the hatchery that collection of adults in the White Salmon River was discontinued. Spring Creek is the only hatchery above Bonneville Dam that produces tule fall Chinook salmon and strives to maintain the genetic integrity of this important stock. The tule fall Chinook is an indicator stock for the U.S. - Canadian Pacific Salmon Treaty, providing valuable information on all salmon stocks for harvest management decisions. This stock is also important for meeting the U.S.

important commercial & recreational ocean and lower river fishery and providing mitigation for habitat lost due to construction of dams.



Spring Creek also operates a small substation on the White Salmon River known as the Big White Ponds. Constructed in the early 1950s, the facility sits on 42 acres one and a quarter miles upstream from the mouth of the river. The purpose of the facility was for adult trapping and egg collection for tule fall Chinook salmon. After 1964, when adult trapping was discontinued, the facility was used to raise additional tule fingerings for release into the White Salmon River. Other species, such as brown trout, chum; Coho and spring Chinook salmon have been reared at the facility and released into the White Salmon River. The last release from the facility took place in 2002, 170,500 spring Chinook salmon. The substation consists of a water intake structure and pipeline, two raceways, a diversion rack in the river and a service building with water rights of 30 cfs from the White Salmon River. The facility has not been operated since 2002 and requires corrective modifications to bring the intake screens into compliance with NOAA, National Oceanic Atmospheric Administration screening requirements before it can be utilized. This facility could play an important role in restoration of native species if Condit Dam is removed as scheduled in 2008 providing access to 16 miles of habitat.

Station Goals

Operation of Spring Creek National Fish Hatchery is guided by five major management goals that were adapted from various policies, regulations, laws, agreements, management plans and legislative mandates that all influence and direct fish production in the Columbia River.

Goal #1: Conserve Columbia River tule fall Chinook salmon in the area upstream of Bonneville Dan (as defined in the Mitchell Act of 1937).

Goal #2: Meet production goals for the John Day Dam Mitigation Program (as defined in the MOU DACW57-73-C-0064)

Goal #3: Assure that hatchery operations support Columbia River Fish Management Plan (*United States v. Oregon*) and U.S./Canada Pacific Salmon Treaty production and harvest objectives.

Goal #4: Minimize impacts to listed (ESA) and other native species, their habitats and the

Goal #4: Minimize impacts to listed (ESA) and other native species, their habitats and the environment.

Goal #5: Develop outreach to enhance public understanding, participation and support of Service and Spring Creek NFH programs.

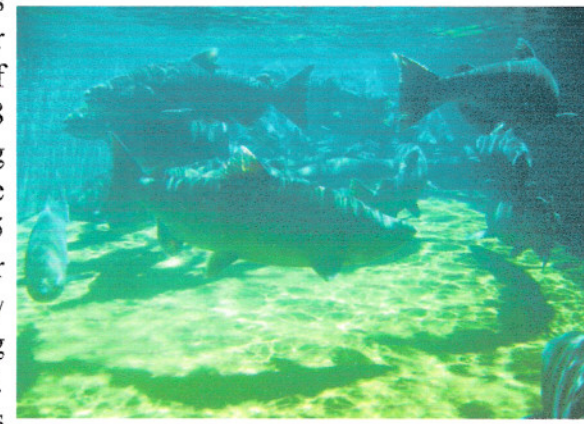
The Hatchery Evaluation Team, HET, is the forum used to ensure that the hatchery is operating in a manner consistent with its stated goals along with input from both internal and external partners. The HET is made up of representatives from the Lower Columbia River Fish Health Center, Columbia River Fisheries Program Office, Abernathy Fish Technology Center, U.S. Army Corps of Engineers, NOAA Fisheries, Washington Department of Fish and Wildlife and the Yakama Nation. Additional operational guidance is provided in the Hatchery Genetic Management Plan, HGMP, the Comprehensive Hatchery Management Plan, CHMP and the Pacific Region: Fisheries Program Strategic Plan, 2004 - 2008.

Station Operations

Fish Production

Brood year 2005 - Tule Fall Chinook

The 2005 tule fall Chinook salmon return was moderately large and the escapement to the hatchery was 34,921. This return produced 24,839 surplus fish, of which 23,987 were sent to be processed for nutrition programs in the Federal Prison system. Of the tule fall Chinook entering the hatchery 1,268 were two-year old males. Female pre-spawning mortality was 5.38%, and 3,744 females were spawned. The final egg take for brood year 2005 was 17.57 million, all of which were retained for production, and no eggs were discarded. Fecundity for this year was 4,692 eggs per female. A spawning ration of 1 male for each 1.5 females was attained. Egg eye-up was 93.2%, and survival to ponding was 88.7%



The total weight gain for fish production during FY 2006 (BY 05, lot number 70) was 132,833 pounds. The amount of feed fed for the year was 108,632 pounds at a cost of $63,129. The conversion ratio for the year was 0.82. The total number of fish released was 15,239,053 smolts. 1200 eyed-eggs were distributed to local schools for the "Salmon in the Classroom" program.

Initial rearing was excellent again with mortality at 0.47% for the month of December. Mortality never rose above 0.64% for any given month. Survival from ponding to release was 98.87%. The presence of Enteric Redmouth (ERM), caused by the bacterium *Yersinia Ruckeri*, was barely noticed until late April this year. The mortality rate was moderate through April and was never a problem. There were some periods when mortality was elevated due to a combination of factors such as tail rot in conjunction with a small amount of ERM, and some other unknown causes. Because of very stable cold temperatures throughout the rearing cycle fish health was very close to ideal.

Fry were also distributed for research purposes to Jeff Johnson of the Columbia River FPO to assess flow management improvements for fish in flood-controlled (man-made tide control gates) estuary side channels adjacent to Tenasillahe and Welches Islands. The islands are both part of the Julia Butler Hansen National Wildlife Refuge in the lower Columbia River estuary. A total of 2,441 fish were used, with PIT tags and left ventral clips for a special study (993 PIT-tags and 1,448 LV-clipped).

Mass Marking

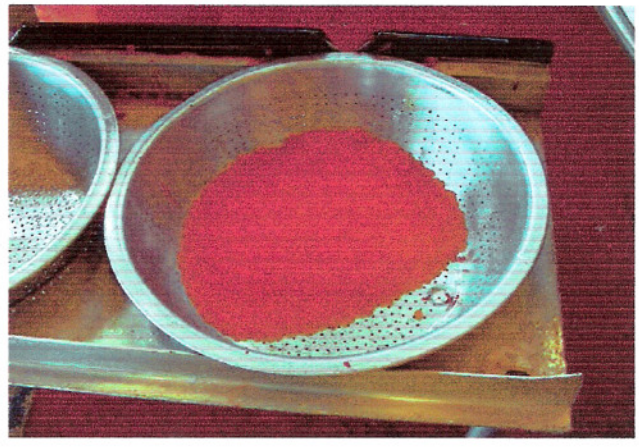
This year's mass-marking operation was the second-ever complete fish inventory at Spring Creek. Operations went even smoother than the first very successful year of marking. Water temperatures were ideal during the entire period of marking, exceeding 50F° just once and hovering in the 47F° - 48F° zone most of the time.

This marking operation confirmed some successful adjustments to our enumeration procedures. Normal egg handling procedures at Spring Creek includes initial enumeration by fecundity estimates based on length, and egg weight sampling at shocking and traying. Upon completion of marking operations on March 22, enumeration resulted in an actual ponding count only - 0.093% below our estimated ponding number. The initial ponding target is set at a conservative 15.6M. The actual number ponded was 15,570,191 verses the estimated 15,584,608. At the end of the rearing period for brood year 2005 all releases totaled 15,239,053. This brood year some adjustments were made to improve accuracy. Egg weighing scales were calibrated, egg-weighing procedures tightened, and ponding-pipe flushing times extended between ponds. These improvements appear to have contributed to a more accurate ponding number. Last years ponding estimation was 4.5% low.

Note: For more details on brood year 2005 please refer to the Production Year Report tables attached later in the report on pages 31-33.

Return Year 2006 - Adult Return, Spawning and Egg Take

The return to the hatchery for 2006 barely exceeded the 10,000 fish escapement goal. The total return to the hatchery was 10,745 of which 869 were two-year old males. Spawning started on September 15 and ended September 29th. A total of 12 spawning days were completed and the final estimated egg take was 20.16 million (4,748 eggs/female) from 4,246 females. This year only a small number of surplus fish, 1,123, were sent to be processed for nutrition programs in the Grays Harbor Food Bank System, 118 went to The Confederated Tribes of The Warm Springs Reservation.



during broodstock holding, ripeness/green issues, variable sex ratios, and including jack returns, a more realistic escapement goal for the hatchery is 10,000 adults. We believe that the adult spawning number of 7,000 has been widely assumed to be our total escapement goal which is inaccurate. To safely reach our escapement spawning target needs to be roughly 10,000 total (including jacks).

Study Update(s)

Unfed Fry Study - initiated 1999, sampling ended, was to be ongoing through 2007, with expected completion 2008. Funding was discontinued in FY 2006 and the study terminated.

The release of otolith-marked unfed fry in December 2002 was the last of three releases for the ongoing unfed fry study that was initiated in 1999. The study was intended to assess survival of unfed fry released from Spring Creek, as measured by hatchery returns. Mark-sampling began with the 2001 return and were scheduled to continue through 2007, but funding has ended and with it, the potential to complete the study. As of this report 29 marks have been found in 5,855 samples analyzed from the 2001, 2002, 2003 and 2004 returns combined. The following table summarizes the date obtained as of February 2006 (BY 2004 samples finally analyzed). It shows the return rate in the unfed fry to be roughly 30 times lower than smolt released fish.

The 2005 adult return was sampled for three and four year old fish. Approximately 1,900 samples were taken but have not yet been analyzed due to lack of funding. Subsequently the only new data to add to the summary is from the 2004 return which as mentioned above, was processed almost a year after sampling while waiting for funding.

Funding for this project, has been provided under Biological Evaluation (John Day Marking) through the Army Corp of Engineers. Mark verification costs are currently $12.50 per fish.

Status of Project Tasks

Marking of 1999, 2001, and 2002 Brood Years	Completed
1999, 2001, 2002 Sampling Juvenile Fish to Verify Marks	Completed
2001 - Otolith Mark Verification on Jacks 2001	Completed
2002 - Otolith Mark Verification on Biosampled Fish 2002 (3 year olds)	Completed
2003 - Otolith Mark Verification on Jacks 2003 and Biosampled Fish 2003 (2 and 4 year olds)	Completed
2004 - Otolith Mark Verification on Biosampled Fish 2004 (2 and 3 year olds)	Completed
2005 - Otolith Mark Verification on Biosampled Fish 2005 (3 and 4 year olds)	**Sampled Collected**
2006 - Otolith Mark Verification on Biosampled Fish 2006 (4 year olds)	**Not to be Completed/No Fish Sampled**
2007 - Complete Analysis and Write Final Report	**Not to be Completed/No Fish Will Be Sampl**

Spring Creek NFH

Unfed Fry Data Summary - February 2006

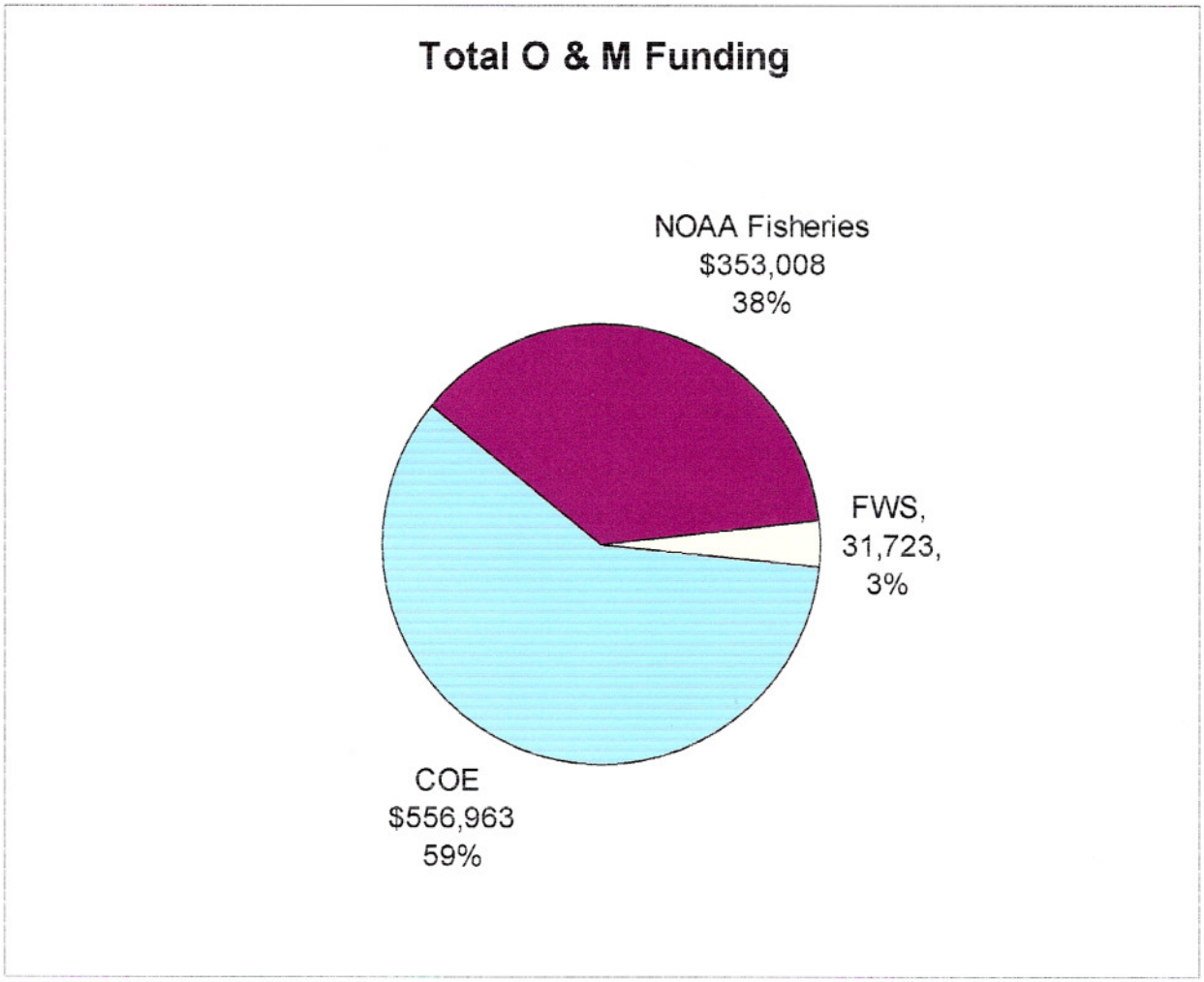
	otolith marked unfed fry released	total smolt release	age	year collected	otolith samples examined	marked otoliths found	percent	total return this age class	non-adclip return 97.22% of total	expanded return from % marks found X non-adclip return	relative return rate div. expanded marks by unfed release #	return rate smolt production
BY 99	3,116,006	16,065,945	2	2001	998	4	**0.4008%**	12,037	**11,702**	**47**	0.0015%	0.0749%
			3	2002	2,160	17	**0.8072%**	60,634	**58,946**	**476**	0.0153%	0.3774%
(MF released)		447,323	4	2003	635	3	**0.4724%**	28,719	**27,919**	**132**	0.0042%	0.1788%
% adclip		2.7843%	5	2004	0	0	**0.0000%**	521	**506**	**0**		0.0032%
% non-adclip		97.2157%			3,739	24		101,911	99,073	655	0.0210%	0.6343%
					BY 05 - 5's Not Targeted							
									97.10% OF TOTAL			
BY 01	3,041,402	16,117,906	2	2003	710	1	**0.1408%**	7,605	**7,384**	**10**	0.0003%	0.0472%
			3	2004	1406	4	**0.2845%**	54,282	**52,707**	**150**	0.0049%	0.3368%
(MF released)		467,750	**4**	**2005**				**15,129**	**14,690**	**0**	0.0000%	0.0939%
% adclip		2.9021%	**5**	**2006**	No Samples Taken							0.0000%
% non-adclip		97.0979%			2116	5		77,016	74,781	160	0.0053%	0.4778%
									96.81% OF TOTAL			
BY 02	3,007,990	15,079,913	2	2004	522	0	0.0000%	5,580	**5,402**	**0**	0.0000%	0.0370%
			3	**2005**				16,421	**15,896**	**0**	0.0000%	0.1089%
(MF released)		481,805	**4**	**2006**	No Samples Taken							0.0000%
% adclip		3.1950%	**5**	**2007**	No Samples Will Be Taken							0.0000%
% non-adclip		96.8050%			522			22,001			0.0000%	0.1459%
All 3 Years -	9,165,398	47,263,764			5,855	29	**0.4953%**					
(MF Released)		1,396,878										

Other

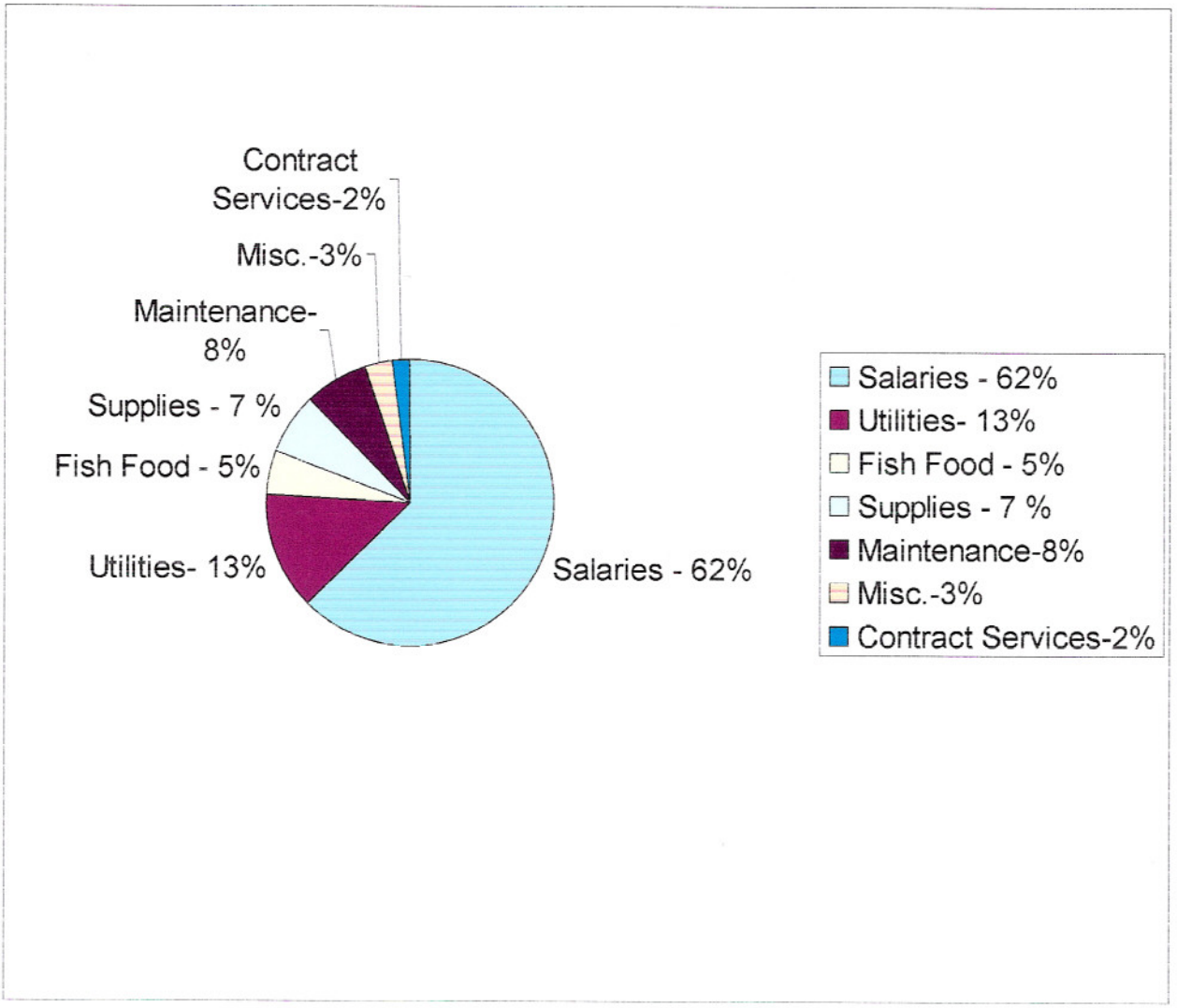
An addition to the spawning process this year was a new Coded Wire Tag detector designed and built by Northwest Marine Technologies. It took a number of weeks to do the fitting and finish work to properly install it in the spawning area. All fish passed through the spawning operation this year were run through the detector. With mass-marking producing 100% ad-clipped fish the detector is required to find tags where before tagged fish were the only ones ad-clipped. The new detector required some adjustments but performed well once they were made.

Funding

The majority of funding for Spring Creek National Fish Hatchery was reimbursable provided by the Army Corps of Engineers, COE, under the John Day Mitigation, and NOAA Fisheries, National Oceanic Atmospheric Administration, through Mitchell Act. Maintenance Management funds were also provided by U.S. Fish and Wildlife Service. Total O&M funding for the facility was $941,694.



Primary Budget expenditure categories include: Salaries, Utilities, Fish Food, Maintenance, Supplies, Service Contracts and Misc.



Additional funds were provided by the COE for replacement of the radiator in the station's standby generator and purchase of a small generator for the new domestic water system, $30,667. End of the year funding was also provided by the COE for purchase of a new fish stunner and biofilter media that totaled $24,879. Majority of the funding for a new domestic well and associated equipment was provided by FWS. - $206,325.

Other Projects

1. A final report from Montgomery, Watson and Harza (MWH) was received that investigated possible spring water collection and delivery improvements to increase total flow to the hatchery. Spring Creek NFH has experienced a decrease in the amount of spring water available for production use over the last few years to a low of 1,900 GPM as measured in July of 2005. The Department of Health had also conducted a sanitation survey on July 26, 2005 and noted concerns with the spring water collection points for domestic use, as possibly ground water influenced, GWI. A contract was awarded to MWH to look at what improvements to the water delivery system to the hatchery that could be implemented to increase water flow and to determine placement and water quantity and suitability for a domestic well. The MWH report did not identify any major improvements that would significantly increase the quantity of water collected for production use, but did proved data on the domestic well drilling project.

2. A new coded wire detector, model T13, was installed in the spawning building prior to the 2006 spawning season. With the implementation of mass marking in 2005 all fish returning for spawning must be scanned for coded wire tags since the adipose fin has been removed. The Columbia Fisheries Resource Office contracted with Northwest Marine Technology to purchase and install the tag detector. Funding was provided through the mass marking budget.

3. In cooperation with the Columbia River Fisheries Resource Office funding was received through the Science Support Program for a two year project to assess the current use and productivity of fish in the lower White Salmon River prior to the removal of Condit Dam. The USGS Columbia River Research Laboratory collected out-migrating juveniles utilizing a rotary screw trap installed a river kilometer 1.5. The trap operated for 22 days collecting more than 2,900 salmonids. Fin clips were taken from 500 individuals for genetic analysis. In 2007 the trap operation will be expanded to calculate trap efficiency and production estimates. Additional genetic samples will be collected and information for summarizing fish assemblage and use in the lower White Salmon River. The hatchery has interest in determining if there is a naturally producing population of tule fall Chinook that are genetically distinct from the current hatchery population and would be more appropriate as a donor stock for restoration.

Cyclical Maintenance

1. The radiator for the station's standby generator was replaced. During an inspection by hatchery staff, rust in the radiator was discovered. Contracting with The Halton Company the radiator was removed for cleaning, but based on severity of plugging within the core, cleaning was not feasible and a new radiator was purchased and installed – $18,150.

Major Equipment Purchases

1. A fish stunner, Model SI~5 was purchased. - $10,500.

Construction/Capital Improvements

1. M & K Drilling was awarded a contract to drill a new domestic well for a cost of $32,210 in July of 2006. During a Washington State Department of Health site inspection concerns were raised with the existing spring water collection points used for domestic supply. It was determined that a well source for domestic use would correct safety and health issues.

2. A contract was awarded to Five Rivers Construction in August of 2006 to complete the new domestic water system from the well to the four quarters and hatchery. The project includes installing a 1,500 gallon water storage tank, two pressure tanks, new water supply lines, booster pumps and backup generator at a cost of $228,843. The project is expected to be completed in December of 2006.

3. Hatchery staff constructed a wooden structure inside a metal storage building located near the government quarters to house pressure tanks and pumps for the new domestic water system. For a total cost of $6,293.

4. Skamania County PUD was contracted to provide three phase power to the new domestic well equipment room – $6,360.

4. The hatchery has been involved in a number of planning forums and discussion groups to identify data needs and recovery tasks prior and post Condit Dam removal. The hatchery can play a major role in recovery and restoration of native species in the White Salmon River watershed by utilizing its fish rearing facilities on the river. A management/recovery plan needs to be developed that identifies the use of the Big White Ponds for restoration or recovery to justify funding necessary to meet NOAA Fisheries' screening requirements and bring the facility back into operation.

Staffing

Staffing at Spring Creek NFH includes 11 permanent positions, Hatchery Manager, Assistant Hatchery Manager, Fishery Biologist, Lead Animal Caretaker, three additional Animal Caretakers, two Maintenance Mechanics, Administrative Assistant, and Information/Educational Specialist.

Personnel Changes

Michael Woods and Edward Gunderson both left the Service with medical disability retirements based on occupational disease claims brought on by repetitive motion activities associated with their jobs.

John Meduna successfully competed for the lead Maintenance Mechanic Position, WG-09 vacated by Bubba Worley in 2004.

Mark Doulos was hired as a term position, Animal Caretaker, WG-03 beginning in November of 2005.

Ron Hopper was hired as a term position, Animal Caretaker, WG–03 beginning in December of 2005 and then successfully competed for a permanent WG-05 Animal Caretaker position vacated by John Meduna.

The Fishery Biologist position was not filled in FY 2006 and may not be filled in the near future due to budget constraints.

One Animal Caretaker position was vacant at the end of FY2006 and is expected to be filled with a temporary WG-03 position early in FY 2007.

Columbia Gorge Information and Education Office

The Columbia Gorge Information and Education Office (I & E) experienced another successful year in generating increased public awareness through expanded community outreach efforts and on-site group visits. The I & E Manager participated at several off-site natural resource education events which generated support for the site and agency. The office provides outreach services for Spring Creek NFH, Carson NFH, and the Lower Columbia River Fish Health Center. The I & E staff also coordinates with the Columbia River Fisheries Program Office on special projects and events. Project Leaders from the various stations meet quarterly with I & E staff to discuss projects and review program objectives.

The I & E Office was staffed by one full-time Information and Education Manager, Cheri Anderson; and one Northwest Service Academy AmeriCorps Volunteer working as an I & E Assistant, Joshua Stoll (Jan 25, 2006 – December 13, 2006).

USFWS, UCD and COE provide hands on watershed assessment learning.

Partnerships for natural resource education programs continued with external agencies again this year. They included: U.S. Army Corps of Engineers (COE), Vancouver Water Resource Education Center, Underwood Conservation District (UCD), U.S. Forest Service, Girl Scouts of America, Educational Service District 112 in Washington and Educational Service District 74 in Oregon, Northwest Service Academy, Mid-Columbia Fisheries Enhancement Group, Clark County Public Utilities, Oregon Dept of Fish and Wildlife, Washington Dept of Fish and Wildlife, Port of Skamania, Yakama Nation Fisheries Program, Benton County Conservation District, and the U.S. Geological Survey.

Area media provided strong support of hatchery programs and events through public service announcements, news stories, and photos. Joanna Grammon, *Skamania County Pioneer*, and Jesse Burkhardt, *The Enterprise*, continue to offer support for both Carson and Spring Creek NFHs by covering Open Houses, Disabled and Kid's Fishing Day and other unique photo opportunities throughout the year.

We have a continuing memorandum of agreement with the 503(c) non-profit *Friends of Northwest Hatcheries*, based at the Leavenworth NFH. Each year the hatcheries that the *Friends* group are associated with have the opportunity to request funding for special projects. This year *Friends* funded two DVDs for a Water Education Curriculum developed by our office totaling $294.00. In addition, sales from the Spawn Shop II totaled $198.21. The I & E Manager continues to participate in monthly board meetings via phone and annual meeting each August in Leavenworth, WA.

Regional Director Ren Lohoenefer, State Representative Linda Flores, Manager Douglas Dysart, Estacada Mayor Bob Austin and Assistant Regional Director of Fisheries Dan Diggs.

A considerable amount of time and effort was devoted to the planning and preparation of the Eagle Creek NFH 50th Anniversary Celebration. The I & E Assistant created the invitations, logo and program for the event. The day was a success drawing over 150 people to the hatchery to enjoy a cultural celebration complete with cultural dancing, salmon bake lunch, spawning viewing, hatchery tours and a formal ceremony.

Efforts to improve the visitor orientation area at Spring Creek NFH were continued this year. The island near the entrance of the hatchery was improved by last years AmeriCorps volunteer by adding landscaping cloth, bark chips and a graveled picnic area. This years AmeriCorps volunteer continued these efforts. A native plant plan was created and implemented. He worked with Columbia High School Horticulture class to propagate plants from seeds and cuttings. I & E staff transplanted and purchased an array of native plants. A work day with the students was done in conjunction with Earth Day 2006. Over 100 native plants were planted throughout the area. A bench and brochure box were also added to enhance the visitor experience.

Education

I & E staff continue to be active and involved in area schools. Spring Creek NFH houses five aquariums/chillers for loan to area schools for a Salmon in the Classroom program. This program provides an opportunity for students to rear salmon in their classroom. Participating teachers present a six week cross curriculum unit with assistance from I & E staff. Each aquarium set up is loaned out for a three to four month period twice a year for maximum utilization. In addition, several area schools have purchased aquarium/chillers to participate in this program. A total of 16 classrooms participated in this program for the 2005/2006 school year.

Our office continued to foster the partnership with the Yakama Nation Fisheries Program (YNFP). The four fish tanks/chillers that were purchased by YNFP were placed this year in Glenwood, Klickitat, Wishram and Goldendale Schools. In an effort to be more involved in area schools, Jeanette Burkhardt with the YNFP assisted in classroom learning activities, parent night at Klickitat School and lining up tribal elders to present cultural talks in these schools.

I & E staff visited mid-Columbia Region classrooms to provide a series of hands-on educational activities to supplement existing salmon units. Fashion-A-Fish is an adaptation lesson designed to allow students to create a fish and its required habitat, fish dissection explores internal and external anatomy with students, and Gyotaku further looks at anatomy through fun and artistic fish printing. In addition, many classes request talks about salmon declines and the history of the Columbia River fishery.

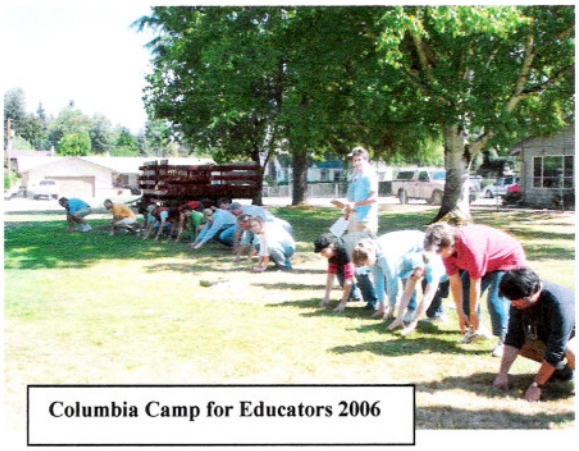
Kanaka Creek Field Day 2006

I & E staff continue to assist area schools with stream adoptions. I & E staff assist Whitson Elementary fourth graders with water quality monitoring of Jewett Creek each month. Wind River Middle School Outdoor Education class continued with its seventh year of adopting Kanaka Creek in Stevenson, WA. This adoption includes water quality testing, invasive weed removal, a tour of the waterfront by Port of Skamania, and macro-invertebrate inventories. This class enters its fourth year of watershed assessments of the Wind River. Our office, COE and UCD provide in-class learning about watersheds, the importance of healthy streams and how this affects salmon in our region. Students perform water quality tests, macro-invertebrate inventories, soil profiles and plant identification in three field days along the Wind River. The unit culminates with a Parent Night highlighting what students have learned and provides agencies the opportunity to further explain our programs to members of the community.

New this year is the addition of watershed assessment by the Cascade Locks Middle School and Mill A 7th and 8th grade students. Students are rearing salmon in their classrooms and have added stream assessments and ecosystems to their studies. In partnership with COE and UCD, students performed water quality testing and macro-invertebrate inventories in Herman Creek and Bass Lake. They are gaining a better understanding of why healthy streams are important to salmon. The students observed spawning coho in both water systems.

Cascade Locks Middle School students learn about stream health.

The third annual Bass Lake Field Day inspired 100 Kindergarteners from Whitson Elementary in spring 2006. This unique learning experience provides hands on activities in stream, forest, and meadow ecosystems. Students culminate the day at Bonneville Dam to view returning salmon and complete activity books for reinforced learning. This is a partnership between USFWS, COE and Whitson Elementary School. This Bass Lake Field effort was then duplicated for 50 Carson Elementary fifth graders at a Skamania County Park in the form of Outdoor School. The I & E Office participated in this learning effort as well.



Columbia Camp for Educators 2006

Columbia Camp for Educators entered its fourth year in 2006. This educator workshop was modified this year to provide an array of curriculum guides to teachers. Each field day provided new ideas for unique learning that teachers can pass on to their classes. This camp is made possible by a partnership between USFWS, COE, the City of Vancouver, WSU Vancouver and the Environmental Information Cooperative.

The Lewis and Clark Learning Trunk was in constant use throughout the school year and into the summer with special camps. This trunk traveled to 11 schools offering more than 350 students learning opportunities.

The USFWS Lewis and Clark traveling van exhibit was part of a larger National Park Service Tent of Many Voices event in Stevenson, WA in April. The I & E Manager assisted with set up, staffing of the exhibit and providing programs to over 500 students throughout the course the event. Nearly 2,300 visitors attended the event.

Special Events*

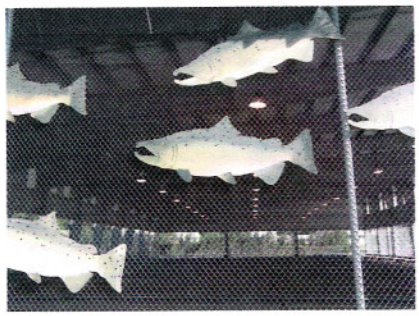
Annual events in which the I & E Office participates include:

- HUGS (Health and Safety) Fair, White Salmon, WA (500 contacts)
- Clark County Home and Garden IDEA Fair, Vancouver, WA* (6,000 contacts)
- Benton County Salmon Summit, Richland, WA* (1,000 contacts)
- Sturgeon Festival, Vancouver, WA* (1,100 contacts)
- Multnomah Falls Family Weekend (500 contacts)
- National Boating and Fishing Week events
  - Oregon Dept. of Fish and Wildlife Bonneville Dam Free Fishing Day (1,735 contacts)
  - Trout Lake U.S. Forest Service Free Fishing Day (400 visitors)
- 7th Annual Carson NFH Open House* (239 visitors)
- Sternwheeler Days, Cascade Locks, OR (600 contacts)
- Hood River County Fair, Odell, OR* (500 contacts)
- Skamania County Fair, Stevenson, WA (200 contacts)
- Trout Lake Community Fair, Trout Lake, WA (135 contacts)
- 7th Annual Carson NFH Disabled Fishing Day* (35 contacts)
- 7th Annual Carson NFH Kid's Fishing Day* (600 contacts)
- Wenatchee River Salmon Festival, Leavenworth, WA* (600 contacts)
- Spring Creek NFH Open House (150 contacts)

*events where *Migration Golf – Links to the Sea* miniature golf course was featured

Outreach/Inreach

I & E Manager and Spring Creek Manager continued to inform district Congressmen in Washington and Oregon and area County Commissioners about issues regarding mass marking. They offered special tours and provided white sheets/press packets regarding hatchery operations and mass marking.



The I & E Assistant created and realistically painted 15 large, wooden spring Chinook salmon for interpretive display at the Carson NFH.

The I & E Manager offered assistance to Eagle Creek and Warm Springs NFH as needed in an ongoing effort to offer complete and quality programming to the public.

I & E and hatchery staff continue to be present and show support at Jewett Creek Streamkeepers, White Salmon River Management Committee, Wind River Technical Advisory Committee, and Wind River Watershed Council monthly/quarterly meetings.

I & E staff continue to photo document the area around the Big White Pond facility on the White Salmon River. Three photo stations are located in the vicinity of the facility. Photos are taken in the spring and fall each year and randomly when significant weather events occur.

I & E Manager maintains and updates the Columbia Gorge National Fish Hatcheries webpages.

I & E Manager creates and distributes the annual Columbia Gorge Outreach Notes in conjunction with Hatchery Data Sheets created by the Columbia River Fisheries Program Office. These informational documents are mailed electronically each fall to over 80 recipients.

FY 2006 Visitor Use Statistics

Type of Program	# of contacts FY06	# of contacts FY05	% change from FY05
ON-SITE			
Guided tours (SC)	905	885	2%
Guided tours (Carson)	110	180	-39%
Open House (SC)	150	200	-25%
Open House (Carson)	239	200	16%
Carson Fishing Days	635	525	17%
OFF-SITE			
Programs/displays/events	122	110	10%
# of Contacts	18,363	13,972	24%

A traffic counter was installed at Spring Creek NFH in September 2003. A formula was worked up to consider employee and regular delivery vehicles coming and going to work each day. The estimated number of visitors according to the traffic counter = 5,181. This visitor count reflects only drive in visitors, not group tours coming in buses.

WILD BROODSTOCK SUMMARY

Station: Spring Creek National Fish Hatchery			**Period Covered:** October 1, 2005			**Through:** September 30, 2006	
Species/Strain And Stock	**Total Number Returned Or Captured**		**Number Spawned**		**Eggs (E) Taken or Fish (F) Harvested**		**Eggs Retained For On-Station Production**	**Remarks**
	Females	**Males**	**Females**	**Males**	**Number**	**% Eyed**		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
FCS-SCW-06-SPC-71	5,825	4,051	4,246	2,812	20,160,523	93.1	17,681,879	Eggs Retained is Prediscard
JACKS		869		125				
Totals/Averages	34,171	31,475	3,741	3,031	20,160,523	93.1	17,681,879	

Form 3-101 (Rev. 1/89)

FISH AND FISH EGG DISTRIBUTION SUMMARY

Station: Spring Creek National Fish Hatchery

Fiscal Year: 2006

Species 1	Fish or Fish Egg Number 2	Fish		Management Area 5	State 6	Agency 7
		Total Weight 3	Length 4			
FCS-SCW-SPC-70	800 EYED EGGS	1	EE	WHITSON ELEMENTARY SCHOOL	WA	
MARCH RELEASE	7,591,028	44,340		COLUMBIA RIVER	WA	
APRIL RELEASE	4,227,017	50,381		COLUMBIA RIVER	WA	
MAY RELEASE	3,418,567	51,718	146,439	COLUMBIA RIVER	WA	USFWS-LCRFPO,JEFF JOHNSON
SMOLTS	2,441	40		COLUMBIA RIVER	WA	
TOTAL FISH	15,239,053	148,880				
TOTAL EGGS	800	1				

Form 3-102 (Rev. 1/89)

HATCHERY PRODUCTION SUMMARY (INTENSIVE CULTURE)

Station: Spring Creek National Fish Hatchery						**Period Covered:** 10/01/05			**Through:** 09/30/06	
Species/Strain and Lot Number	**Fish on Hand Last Day of Period**					**To Date This Fiscal Year**				
	Number	**Weight**	**Length**	**D.I.**	**F.I.**	**Weight Gain**	**Feed Expended**		**Conversion**	**Percent Survival**
							Pounds	**Costs**		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
FCS-SCW-05-SPC-70						132,833	108,632	63,129	.81	97.87
Totals/Averages						132,833	108,632	63,129	.81	97.87

Form 1-103a (Rev. 1/89)

FISH HEALTH ACTIVITIES SUMMARY
NATIONAL FISH HATCHERY

Station: Spring Creek National Fish Hatchery **Fiscal Year:** 2006

Problem/Incident/Activity 1	Species 2	Therapeutic Treatment 3	Results/Comments 4
ENTERIC RED MOUTH	FALL CHINOOK	10 DAY MEDICATED FEED TRIAL ON 3 PONDS, 3 CONTROL	MONITORED CLOSELY, MORTALITY ELEVATED.

Chemical Summary:

Chemical : IODOPHOR Purpose: DISINFECTION Total Amount Used: 400 GALLONS Total Cost: $386.00

MS-222 ANESTHETIC 10.4 KILOS $1,816.00

Form 3-108 (Rev. 1/89)

FIVE YEAR HATCHERY PRODUCTION SUMMARY

STATION: Spring Creek National Fish Hatchery

	Fiscal Year				
	2006	**2005**	**2004**	**2003**	**2002**
Fish Production Data Intensive Culture: Fish Weight Gain (pounds)	132,833	125,835	153,146	172,231	168,069
Fish Numbers	15,239,053	14,541,602	14,653,529	15,079,904	18,311,914
Percent Survival	97.87	97.67	97.9	97.7	97.9
Feed Conversion	.82	.79	.79	.73	.74
Extensive Conversion Fish Weight Gain (pounds)					
Fish Numbers					
Percent Survival					
Pounds Per Acre					
Broodstock Production Data					
Number of Females Spawned	4,246	3,744	3,741	4,434	4,960
Number of Eggs	20,160,523	19,627,769	18,923,838	23,017,675	24,662,666
Number of Fish					
Management Data Full-Time Equivalents	8.87	8.73	10.76	9.56	10.97
Operational Costs	892,822	954,867	1,019,201	976,792	901,529
Vehicle/Equipment Costs (Items Over $1,000)	0	20,728	20,828	45,518	0
Cyclical Maintenance Costs		52,551			12,612
Quarters Costs	11,499	18,657	5,644	20,758	25,652

Form 3-115 (Rev.1/89)

OPERATION/MAINTENANCE COST DATA

STATION: Spring Creek National Fish Hatchery **FISCAL YEAR:** 2006

	Funding Source			
	Operations (Fisheries) 1	**Cyclical Maintenance (Fisheries)** 2	**Quarters Maintenance** 3	**Other Funding** 4
1. Salaries, Permanent (Including Benefits):	$2,420.03			$569,310.00
2. Salaries, Temporary (Including Benefits):				$4,836.00
3. Operating Costs:				
A. Utilities				
1. Telephone				$2,802.00
2. Electricity				*$111,494.00
3. Heating Oil				
4. Natural Gas				
5. Other (Gorgenet)				$4,740.00
B. Vehicle Maintenance				
1. Distribution Vehicles Total Mileage 0				

*Actual Charges $138,741.43 - $27,247.43 RDS'd to FY 2005.

Form 3-110a (Rev. 1/89)

OPERATION/MAINTENANCE COST DATA

STATION: Spring Creek National Fish Hatchery **FISCAL YEAR:** 2006

	FUNDING SOURCE			
	Operations Fisheries 1	**Cyclical Maintenance (Fisheries)** 2	**Quarters Maintenance** 3	**Other Funding** 4
B. Vehicle Maintenance (continued)				
2. Non-Distribution Vehicles				
Total Mileage: 27,300				$1,366.00
C. Fuel for Vehicles/Equipment				$9,140.00
D. Supplies				
1. Fish Food				*$49,425.00
2. Chemicals				$16,865.00
3. Fertilizer				
4. Tags and Tagging Supplies				
5. Office Supplies/Custodial/Other Supplies	$5,442.00			$62,212.00
E. Travel				$14,838.00

*$15,591.00 Fish Food purchased with FY 2005 Funds.

Form 3-110b (Rev. 1/89)

OPERATION/MAINTENANCE COST DATE

STATION: Spring Creek National Fish Hatchery **FISCAL YEAR:** 2006

	FUNDING SOURCE			
	Operations Fisheries 1	**Cyclical Maintenance (Fisheries)** 2	**Quarters Maintenance** 3	**Other Funding** 4
3. F. Moving Expense				
G. Miscellaneous - Co-Op Agreements, Contracts Rendering, Training	$23,360.00			$45,794.00
4. Operations (Total: Line 1, 2, 3 A-G)	$31,223.00			$892,822.00
5. Vehicles/Equipment Purchased (Over $1,000)				
6. Cyclical Maintenance				
7. Quarters Maintenance			$11,499.00	
8. Total Maintenance (Total: Lines 5, 6, and 7)			$11,499.00	
9. Column Totals (Total Lines 4 and 8)	$31,223.00		$11,499.00	$892,822.00

10. Total Expenditures (Add Totals of Column 1-4) $ 935,544.00

Form 3-110c (Rev. 1/89)

REPORT OF STATION PERSONNEL

STATION: Spring Creek National Fish Hatchery **FISCAL YEAR:** 2006

Part I - Permanent Personnel (FTE's: 8.87)					
Name of Employee	**Functional Title**	**Grade**	**Period Worked**	**Remarks**	**FTE**
Marchant, Lawrence S.	Hatchery Manager	GS 0482/13	10/01/2005 - 09/30/2006		1
Ahrens, Mark A.	Asst. Hatchery Manager	GS 0482/12	10/01/2005 - 09/30/2006		1
Anderson, Cheri A.	Information & Education Specialist	GS 1001/11	10/01/2005 - 09/30/2006		1
Armstrong, Ronald D.	Maintenance Mechanic Helper	WG 4749/8	10/01/2005 - 09/30/2006		1
Doulos, Mark F.	Laborer	WG 3502/3	10/19/2005 - 09/30/2006		.99
Hogberg, Debra L.	Program Assistant	GS 0303/7	10/01/2005 - 09/30/2006		1
Hopper, Ron L.	Animal Caretaker	WG 5048/5	11/13/2005 - 09/30/2006		.88
Meduna, John H.	Maintenance Mechanic	WG 4749/9	10/01/2005 - 09/30/2006		1
Zirjacks, Scott L.	Animal Caretaker Leader	WL 5048/5	10/01/2005 - 09/30/2006		1
Part II - Temporary Personnel (FTE's: .18)					
Name of Employee	**Functional Title**	**Grade**	**Period Worked**	**Remarks**	**FTE**
Hankin, Chrisptopher	Animal Caretaker	WG 5048/2	12/17/2005 - 05/08/2006		.18

Form 3-114 (Rev. 1/89)

PUBLIC RELATIONS

Station: Spring Creek NFH **Fiscal Year: 2006**

1. Presentations:	Number of Groups	Number of People
On Site	36	1143
Off Site	122	18,363

2. Number of Visitors		
Official	0	0
Public	0	5,181

3. Other Public Relations Activities:
   Type of Activity
   a.

Co-Op Agreements With:

Volunteer Agreement With:

1. Northwest Service Academy
2. Friends of Northwest Hatcheries
3. Columbia High School - student volunteer (long-term)

See pages 15-20 for details.

Form 3-172 (Rev. 1/89)

2006 PRODUCTION YEAR REPORT

Spring Creek National Fish Hatchery

Fall Chinook Salmon

Hatchery Return Measurements 2005

Table 1: 2005 Adult Returns, Dead In Ponds (DIPs), Killed as Surplus, Other (Bad or Green Females) and Spawned.

	Males	Females	Jacks	Totals
Adult Return	12,478	20,545	1,268	34,291
DIP's	1,506	1,105	168	2,779
Killed as Surplus	8,590	15,190	1,059	24,839
Other (Bad or Green)		506		506
Spawned	2,382	3,744	125	6,167

Dates of Adult Return: August 29 - October 2
Dates of Spawning: September 15 - September 30
Results: 17,567,655 eggs taken (4,692 real fecundity)

Incidence of Disease in Adults:

Males 60 sampled

Infectious Hematopoietic Necrosis	(IHN) 0
Infectious Pancreatic Necrosis	(IPN) 0
Viral Hemorrhagic Septicemia	(VHS) 0
Erythrocytic Inclusion Body Syndrome	(EIBS) 0

Females

150 sampled

	(IHN) 3
	(IPN) 0
	(VHS) 0
150 sampled *Renibacterium salmoninarum*	2
0 sampled *Yersina ruckeri*	0
Aeromonas salmonicida	0
20 sampled *Ceratomyxa shasta*	0

Table 2: **2005** Adult Return Age Composition and Mean Lengths.

Male			Female		
Age	**Number**	**Mean Length**	**Age**	**Number**	**Mean Length**
2	2,314	64.57	2		
3	7,174	86.43	3	9,247	83.04
4	4,165	94.29	4	10,964	88.30
5	93	99.50	5	334	93.43
Total	13,746			20,545	

Hatchery Rearing **BY2005**

Green Eggs	Taken	17,567,655	(actual)
	Kept	16,364,829	(None Discarded)
	Shipped	800	

Survival Percentages	Green To Eyed Egg	93.2%
	Eyed Egg To Ponding	95.2%
	Ponding To Release	97.9%

Fry	Ponded for Production	15,570,191
	Released	15,239,053

Table 3: Rearing Conditions for System During Rearing Period (Dec.2005 - May 2006).

Month	Density Index	Flow Index	Ammonia (ppm)
December	0.09	0.86	0.18
January	0.16	1.09	0.19
February	0.24	1.44	0.23
March	0.18	0.88	0.24
April	0.18	0.90	0.21
May	0.16	0.90	0.15

Table 4: Fish Health Conditions During Rearing Period (Dec.2005 - May 2006).

Date	Presence of Pathogens
At Ponding	None
January	None
February	Slightly elevated mortality, presence of ERM and Y.ruckeri.
March	Mortality still slightly elevated but normal range, presence of ERM, close monitoring.
April	Good health in most with ERM still present at low-level.
May	Rising mortality no known cause, possible smoltification related. Release date advanced to May 5.

Release Conditions for Fish Held in Production Ponds Only

Table 5: Conditions at Release.

At Release (by group)	March	April	May
Date	3/02/06	4/17/06	5/05/06
Average Length (in.)	2.69	3.49	3.69
Total Released*	7,591,028	4,227,017	3,421,008
Index Marked	150,180 (CWT only) 150,223 (AD+CWT)	150,176 (CWT only) 150,458 (AD+CWT)	151,439 (CWT only) 150,057 (AD+CWT)
Other Marks	All other 100% Ad-clipped	All other 100% Ad-clipped	All other 100% Ad-clipped
Water Temp in River(F) 5-Day Ave Dam Spill	44.0	49.5	50.5

2006 PRODUCTION YEAR REPORT

Spring Creek National Fish Hatchery

Fall Chinook Salmon

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Infectious Pancreatic Necrosis	(IPN) 0
Viral Hemorrhagic Septicemia	(VHS) 0
Erythrocytic Inclusion Body Syndrome	(EIBS) 0

Females

150 sampled

	(IHN) 3
	(IPN) 0
	(VHS) 0
150 sampled *Renibacterium salmoninarum*	2
0 sampled *Yersina ruckeri*	0
Aeromonas salmonicida	0
20 sampled *Ceratomyxa shasta*	0